Claims

1. Human poypeptide designated Cyk-4, which is a GTPase activating protein (GAP) for Rho family of GTPases, with the amino acid sequence as set forth in SEQ ID NO:2 or with the amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

2. Murine Cyk-4 poypeptide designated Cyk-4, which is a GTPase activating protein (GAP) for Rho family of GTPases, with the amino acid sequence as set forth in SEQ ID NO:4 or with the amino acid sequence encoded by a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

3. An isolated DNA molecule comprising a polynucleotide with the nucleotide sequence as set forth in SEQ ID NO:1 encoding human Cyk-4 polypeptide, or an isolated DNA molecule encoding human Cyk-4 polypeptide comprising a polynucleotide which hybridizes under stringent conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1.

4. An isolated DNA molecule comprising a polynucleotide with the nucleotide sequence as set forth in SEQ ID NO:3 encoding murine Cyk-4 polypeptide, or an isolated DNA molecule encoding murine Cyk-4 polypeptide comprising a polynucleotide which hybridizes under stringent

conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:3.

5. An antibody which is specifically reactive with an epitope of the human Cyk-4 polypeptide of claim 1.

6. An antibody which is specifically reactive with an epitope of the murine Cyk-4 polypeptide of claim 2.

7. A method for identifying a compound capable of modulating cytokinesis, wherein the compound's ability to modulate the function of CYK-4 is determined.

8. The method of claim 7 wherein the compound's ability to promote GTP hydrolysis by a Rho family GTPase is determined by incubating a substrate selected from the members of the Rho family GTPases with GTP for a period of time sufficient to allow saturation of the substrate's GTP binding sites, adding Cyk-4 and allowing it to react in the presence or absence of the test compound, and determining the amount of hydrolized GTP.

9. The method of claim 7 wherein the compound's ability to inhibit Cyk-4 function is determined by determining the compound's ability to interfere with the biochemical interaction of CYK-4 and a member of the MKLP1 subfamily.

10. The method of claim 7 wherein the compound's ability to inhibit CYK-4 function is determined by determining the compound's ability to interfere with the biochemical multimerization of CYK-4.

11. The method of claim 7 wherein the compound's ability to inhibit MKLP1 function is determined by determining the compound's ability to interfere with the biochemical multimerization of a member of the MKLP1 subfamily.

12. A compound identified in the method of any one of claims 7 to 11 for use in cancer therapy.